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per cent. of the total number committed for trial; while the proportion among those summarily convicted was only 10 per cent. The same fact of the large proportion of strangers committed for trial in towns is observed in the statement drawn from the annual returns of the chaplain of the Preston Gaol, contained in the Proceedings of the Statistical Society of London, at page 246.

The above returns do not distinguish the sexes of the offenders; but it appears from a statement contained in Mr. Cargill's Report upon the Educational and Criminal Statistics of Newcastle,* that in the period from the 12th of October, 1836, to the 24th of April, 1838, the number of males committed to prison was 757, and of females 507, being a proportion of 3 males to 2 females; whereas the proportion in London is about 3 males to 1 female; and in England and Wales it is 5 males to 1 female. This remarkable disproportion in Newcastle led to some discussion in the Section, from which it was elicited that the female population of the town have very few sources of employment, either in trade or manufactures; and that in consequence of their husbands' wages being usually very large, they are freed from the necessity of exertion, and become too frequently addicted to the use of intoxicating liquors. It was also stated that a large proportion of the female offenders came from a particular quarter of the town, called Sandgate.

As these returns refer only to a portion of a single year they do not afford the means of comparing the nature and amount of crime in Newcastle with the annual statements relating to the county of Northumberland, contained in the Criminal Tables laid before Parliament, nor of drawing any other useful general inferences from the documents in their present shape.

A Statistical View of the recent Progress and present Amount of Mining Industry in France; drawn from the Official Reports of the "Direction Générale des Ponts et Chaussées et des Mines."
By G. R. PORTER, Esq. F.R.S.

[Read before the Statistical Section of the British Association, 20th August, 1838.]

IF, after having completed a careful examination into the condition of the various material elements that together make up the sum of the social and political advantages of England, a man were called upon to declare to which one among those elements our advanced position is chiefly to be ascribed, we can hardly doubt what would be his decision. The mineral deposits found in such rich abundance and in such great variety beneath the soil in so many quarters of the island would at once be acknowledged as the chief source of our manufacturing and commercial greatness, and thence of our political and social advancement.

No country in the world offers a finer field than England for geological researches, and no where has the science of geology been pursued with greater ardour or with better success. It would be superfluous, while addressing any Section of the British Association, to enlarge upon these facts, or to offer in any way to testify to the interest with which the researches of the accomplished geologists included among its members are watched throughout the scientific world. The amount of their

* See page 359.

discoveries, and still more the philosophic spirit in which they are conducted, have shed and are shedding lustre upon our age and country. In the opinion of Sir John Herschel, than whom no one is better qualified to judge on such a subject, "geology, in the magnitude and sublimity of the objects of which it treats, undoubtedly ranks in the scale of the sciences next to astronomy." It is perhaps not reasonable to expect that minds to whom the science owes this proud distinction should descend from the heights of inductive reasoning to the commonplace paths of social and commercial utility; but it is surely surprising that, among a people so proverbially practical as we are, the advantages which under this aspect might be drawn from such researches should be so little the subjects of enquiry as they hitherto have been: even the amount of one of the most important of our mineral products is so much left to conjecture, that the produce of our coal-mines at the present day is variously estimated by men conversant with the subject at from 15,000,000 to 30,000,000 of tons per annum.

To obtain accurate returns of this nature is beyond the power of individuals, and even of the Government unless it should be armed with legislative authority for the purpose. Any such interference with private interests has always been viewed in this country with the greatest jealousy, and it is probable that at no former period of our history would any administration, however powerful for other purposes, have succeeded in obtaining such an authority from Parliament. Its motives in seeking for the information would have been misunderstood, and the value of the knowledge when obtained might even have been questioned. In both these respects, the public mind has made considerable advances of late years; and as it may now be seen that the necessary authority has been given in France, where it is at least as liable to abuse as it would be in this country, and that it has been employed for some years by the French government without producing anything save advantage to the mining interests of that country and to the nation at large, it may be found less difficult than heretofore to obtain the authority of Parliament for the collection of statistical data upon various subjects connected with the productive industry of England.

The law which gives authority to collect statistical details of the mining industry of France was passed by the legislative chambers in April, 1833. The execution of the duties enjoined by that law is entrusted to a public department known as the "*Direction Générale des Ponts et Chaussées et des Mines*," and placed under the ultimate control of the minister of commerce and of public works. Attached to this department is a staff of well-instructed able engineers, who make a personal inspection of every establishment connected with mining operations, and a report is carefully drawn up from materials supplied by these officers, and presented every year to the minister of public works. These reports present a most elaborate view of every branch of mineral industry in each department of the kingdom; and it may excite surprise on the part of an English audience, to learn that 85 out of the 86 departments into which France is divided are, in some branch or other, interested in the enquiry: some of them it is true are so interested in only a trifling degree; but Gers is the only department which does not in any way add to the mineral wealth of France.

In the earlier stage of their labours, the inspecting engineers limited themselves to the collection of information concerning the actual condition of the establishments visited during the current year; but they have since obtained materials for comparing the annual progress of the most important branches, and have compiled and presented tabular statements of the quantity and value of mineral fuel and of various metals produced in each year from 1814 to 1836 inclusive. From these tables, the results of which will be given hereafter, it will be seen at what a rapid rate of increase the mineral resources of France have of late years been developed—a rate which may reasonably suggest the probability of its being in some part owing to the public attention having been drawn to the subject, and still more to suggestions offered to the proprietors of works by accomplished engineers at times when the works have been inspected. The increase in the value of the coal, iron, lead, antimony, copper, manganese, alum, and sulphate of iron, since the system of inspection was begun, has been from 105,750,995 fr. (£4,230,039), in 1832, to 154,228,455 fr. (£6,169,138), in 1836, or 45 per cent., as under:—

	1832	1836
	Francs.	Francs.
Coal, Lignite, and Anthracite . . .	16,079,670	26,607,071
Iron and Steel	87,312,994	124,384,616
Silver and Lead.	856,673	821,534
Antimony	71,233	305,032
Copper	247,680	196,924
Manganese	105,150	152,671
Alum and Sulphate of Iron . . .	1,077,595	1,760,607
Total	105,750,995	154,228,455

The increase experienced in the same branches during the four years that preceded these inspections, viz., from 1828 to 1832, amounted to no more than 304,392 fr., or £12,175, while the increase experienced during an equal period under the system of inspection, viz., from 1832 to 1836, has been, as above stated, 48,477,460 fr., or £1,939,098.

Coal.—There are 46 coal-fields (*Bassins houillers*) from which that mineral is obtained in France. These coal-fields are situated in the following departments, 30 in number, which are here arranged in the order of their productiveness, as shewn by the quantity procured in 1835, and stated in English tons:—

	Tons.		Tons.
Loire	812,914	Rhône	7,463
Nord	531,605	Mayenne	6,206
Saône et Loire	142,149	Ardèche	5,229
Aveyron	119,152	Pas-de-Calais	3,736
Gard	45,569	Moselle	3,015
Calvados	41,511	Corrèze	1,763
Nièvre	30,162	Creuse	1,576
Haute Loire	21,883	Vosges	1,356
Loire Inférieure	21,742	Dordogne	1,000
Tarn	18,420	Haut Rhin	537
Hérault	16,201	Vendée	504
Haute Saône	16,128	Bas Rhin	177
Allier	13,826	Cantal	177
Maine et Loire	11,556	Lot	60
Puy-de-Dôme	11,387	Aude	22

The coal-mines in the department of the Loire are the most important, as well on account of the quality of their produce as of the extent and geographical position of the field. This occupies the entire width of that narrow part of the district of Forez which separates the Loire from the Rhone, where these two rivers approach the nearest to each other. Being thus situated near two navigable rivers, the produce of the mines readily finds its way to Marseilles, Mulhausen, Paris, and Nantes: Lyons is supplied by means of the rail-road between that city and St. Etienne. There are 45 separate mining establishments, which extend over an area of 42,038 English acres.

In the department du Nord coal is raised by eight different establishments from the coal-field of Valenciennes, which is a prolongation of the great coal formation of Belgium. The produce is distributed by the Scheldt, the Scarpe, the canal of St. Quentin, the Oise, and the Seine, and is used in the department du Nord, in the Pas-de-Calais, and in Paris.

The department of the Saône et Loire contains two distinct coal-fields. The largest of these (Bassin du Creusot et de Blanzey) has 13 mining establishments over a surface of 77,376 acres: only eight of these establishments were in course of prosecution in 1835. At Creusot, where the pits are deepest, the workings are 650 feet below the surface. A large proportion of the produce is used in the iron-works at Creusot, the remainder is distributed by the canal of the Centre to the departments of the Upper Saône and of the Upper and Lower Rhine. The smaller coal-field in this department (Saône et Loire) has three mining establishments in operation, extending over 17,560 acres. The produce, which serves for almost all manufacturing purposes, is conveyed by a railway 17 miles long to the Burgundy Canal, by means of which it is distributed through Alsace and to the valleys of the Yonne and the Seine.

In Aveyron there are three coal-fields, for working which there are 23 mining establishments. The produce is for the most part used in the manufactories of Decazeville and de la Forezie. If the navigation of the Lot were improved the coal of Aveyron might readily be conveyed to Bordeaux.

The Bassin d'Alais, in the department du Gard, although occupying a surface of 66,510 acres, and worked at 20 different points, produced in 1835 less than 50,000 tons. Nearly the whole that is raised is used in the iron-works in the same district: the quantity is thus limited because of the deficiency of roads or other means of distribution. A projected railroad, to connect the mines with the Rhone and the canal of Languedoc, would give a great impulse to mining industry in this quarter, by conveying the produce to Narbonne, Perpignan, Marseilles, and Toulon, thus rendering it available for steam navigation in the Mediterranean.

The Bassin de Littry, in Calvados, supplies fuel to Bayeux, Vire, and Caen. A part of the produce is used on the spot for lime-burning. The first steam-engine that was used in France was employed in 1749 to clear these coal-pits of water.

The produce raised in the remaining 24 departments is so small that

it would be trifling with the time of the Section to offer any particular account of their mines. A Table is subjoined, in which are stated the quantity and value, in English measure and money, of the coal, lignite, and anthracite, respectively, raised in all the departments of France in each year from 1814 to 1836. It will be seen from this Table that the produce has been increased from 675,747 tons, in 1814, to 2,583,587 tons, in 1835, or 282 per cent. If this interval of time is divided into three nearly equal periods, the average annual produce in each period has been as follows:—

7 years—1814 to 1820, 792,496 tons.

8 „ 1821 „ 1828, 1,197,491 „ Increase, 51 per cent.

8 „ 1829 „ 1836, 1,835,831 „ „ 53 „ from 2nd period.

The increase, comparing the 1st and 3rd periods, is 131 per cent.

The whole number of mines in operation in 1836 was,—

Coal	189	—employing 19,813 workmen.
Lignite	44	„ 1,181 „
Anthracite	25	„ 919 „
Total	258	„ 21,913 „

Great as the increase has been of late years in the produce of the French coal-mines, the inspectors give it as their opinion that it is very far from having reached its utmost limit. On the contrary, they predict that this branch of the national industry will shortly exhibit a more rapid progress than any hitherto seen. Large establishments are in the course of formation in the great field of the Loire, as well as in other localities; and it is expected that the opening of cheaper means of communication will give an impulse to coal-mining in quarters where it has hitherto been scarcely attempted.

Statement of the Quantity and Value of Coal, Lignite, and Anthracite, raised in France, in each Year from 1814 to 1836.

Years.	COAL.		LIGNITE.		ANTHRACITE.		TOTAL.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
		£.		£.		£.		£.
1814	636,835	261,112	23,086	9,161	5,689	1,824	665,610	272,097
1815	715,276	324,823	23,300	11,608	5,735	1,985	744,311	338,416
1816	764,785	322,648	25,504	11,239	4,723	1,646	795,012	335,533
1817	815,229	342,976	27,340	16,060	4,572	1,579	847,141	360,615
1818	723,471	313,704	29,600	14,562	5,018	2,120	758,039	330,336
1819	761,800	353,518	44,113	11,846	8,037	4,874	813,950	349,738
1820	871,980	370,114	43,977	21,464	7,405	3,827	923,362	335,405
1821	913,213	395,771	39,122	19,344	5,676	2,430	958,011	417,605
1822	950,899	400,842	48,603	21,316	8,220	3,773	1,007,722	495,931
1823	950,642	404,846	49,194	22,399	9,313	4,507	1,009,149	431,752
1824	1,065,016	435,695	41,032	19,897	13,222	6,481	1,119,370	462,073
1825	1,176,588	482,698	59,242	25,008	23,374	9,915	1,259,154	517,621
1826	1,217,963	520,812	68,116	29,201	14,966	5,992	1,301,045	556,005
1827	1,344,432	557,130	57,838	35,214	25,483	12,185	1,427,753	604,529
1828	1,403,239	565,733	64,939	26,764	29,647	14,969	1,497,825	607,466
1829	1,378,136	539,847	59,719	22,747	32,512	16,884	1,470,367	579,478
1830	1,477,513	582,118	64,348	24,600	30,761	16,221	1,572,622	632,939
1831	1,405,124	549,452	52,513	19,723	30,631	16,726	1,486,268	585,901
1832	1,549,636	600,389	69,177	22,314	38,398	20,483	1,657,211	643,186
1833	1,635,776	672,893	58,274	26,160	45,180	25,288	1,737,330	724,341
1834	1,962,085	748,946	86,064	31,166	53,987	30,715	2,102,136	810,827
1835	1,937,022	733,281	101,508	39,433	57,603	32,532	2,116,133	865,246
1836	2,394,299	1,000,018	96,240	36,514	54,296	27,750	2,544,835	1,064,282

In this Table metrical quintals are converted into English tons at the rate of 10·1465 metrical quintals to a ton, and francs are reduced to sterling money at the exchange of 25 fr. per pound sterling: fractions are discarded.

During the years embraced in the foregoing table the use of coal in France has been increased in a greater degree than the productiveness of the mines, as will be seen from the following statement of the quantity imported for consumption (*commerce special*), in each year from 1815 to 1836 :—

	Tons.		Tons.
1815 . .	245,653	1826 . .	495,325
1816 . .	315,815	1827 . .	531,800
1817 . .	235,269	1828 . .	570,010
1818 . .	277,624	1829 . .	539,247
1819 . .	234,102	1830 . .	621,459
1820 . .	276,705	1831 . .	533,259
1821 . .	315,785	1832 . .	567,251
1822 . .	332,192	1833 . .	686,118
1823 . .	321,497	1834 . .	730,281
1824 . .	456,644	1835 . .	755,365
1825 . .	499,325	1836 . .	949,373

The greater importations of the last three years have been encouraged by a partial diminution in the rate of duty on consumption—a measure rendered necessary by the rapid extension of steam navigation. This great invention, which appears to be only now beginning to develop its full energies, will probably soon compel a further relaxation on the part of the French government, and will in various ways cause a great and permanently-extending increase to this most important branch of the mining industry of England.

Iron.—At the present time France occupies the second rank among nations as regards the production of iron, England being still immeasurably in advance of France, in which country the extension of this branch of industry is far less than has been effected of late years with us.

There are at this time in France 12 distinct localities or districts, in which the making of iron is prosecuted. The processes employed for the conversion of the ore in these different sets or groups of iron-works differ materially from each other, in respect of the different kinds of fuel employed for the purpose. May it not be owing in a great measure to this circumstance, that improvements in the manufacture have hitherto made a very slow progress in that country? The improvement applicable to the process where one kind of fuel is used may be inapplicable to works where another kind of fuel is consumed, and it will therefore probably be confined to the spot in which it is originated. If the processes used for the conversion of the ore had been identical at first, it would not have been possible thus to limit improvements, which, in whatever district they had begun, must have been adopted throughout the country as speedily as the requisite knowledge could be diffused or the needful apparatus obtained.

The 12 distinct districts in which the making of iron is prosecuted in France are thus distinguished in the official reports :—

DEPARTMENTS.

1. Group of the North-east Ardennes—Moselle—Meuse.
2. „ of the North-west. . . . Eure—Orne—Mayenne—Morbihan—
Sarthe—Loire Inférieure—Côte du
Nord—Eure et Loir—Ille et Vilaine—
Manche—Loir et Cher—Maine et Loire.
3. „ of the Vosges Bas Rhin—Vosges—Moselle.
4. „ of the Jura Côte d'Or—Haute Saône—Doubs—Jura.
5. „ of Champagne and Burgundy, Côte d'Or—Haute Marne—Vosges—
Meuse—Marne—Aube—Yonne.
„ of the Centre Nièvre—Cher—Allier—Saône et Loire.
„ of the Indre and la Vendée . Vendée—Indre—Cher—Vienne—Indre et
Loire—Loir et Cher—Haute Vienne.
8. „ of the coal-fields of the South, Creuse—Puy-de-Dôme—Cantal—Aveyron
—Gard—Ardèche—Loire—Isère—Ain.
9. „ of Périgord Charente—Dordogne—Lot et Garonne—
Tarn et Garonne—Corrèze—Haute
Vienne.
10. „ of the Alps Drôme—Isère—Hautes Alpes—Vaucluse.
11. „ of the Landes Landes—Gironde—Lot et Garonne.
12. „ of the Pyrenees Basses Pyrénées—Hautes Pyrénées—Ar-
riège—Aude—Pyrénées Orientales—
Hérault—Tarn.

The actual and relative importance of these groups may be seen from the following particulars, given in the Report presented in the present year, and having reference to the working of 1836:—

Group.	Number of Iron Works.	Number of Workmen.	Quantity of Fuel in Tons and Steres.				Quantity of Products.			Value of Products in English Money.
			Wood Charcoal	Coke.	Coal.	Wood.	Cast Iron.	Bar Iron.	Steel.	
			Tons.	Tons.	Tons.	Steres.	Tons.	Tons.	Tons.	£.
1	94	2,233	90,814	3,530	8,230	33,533	46,233	30,450	162	530,599
2	59	1,771	54,051	..	2,964	..	23,755	11,182	..	210,238
3	7	388	..	7,315	24,830	..	2,226	9,189	..	147,500
4	148	2,090	126,754	..	910	..	54,737	28,900	581	652,030
5	152	2,807	139,602	..	40,947	..	81,499	42,309	..	691,528
6	124	2,133	71,098	14,094	35,798	..	36,993	27,029	766	501,362
7	21	499	17,564	..	..	..	5,824	2,870	..	61,085
8	15	1,243	..	87,444	115,038	..	28,440	27,276	..	377,158
9	115	1,175	39,120	..	3,399	..	14,893	9,064	96	173,646
10	39	174	6,614	..	251	..	2,021	282	1,120	6,916
11	21	410	17,466	..	32	478	7,118	3,674	..	62,535
12	99	815	30,742	..	..	..	..	9,466	..	171,140
	894	15,738	593,855	112,383	232,399	34,061	303,739	201,691	2,725	3,585,739

The figures given in the foregoing table do not present in all their importance the extent of this branch of industry in France. The number of workmen employed for the production of pig-iron (*fonte*), malleable iron (*gros fer*), and steel, which alone are there included, does not much exceed one-third of the number engaged in all the various processes of the iron manufacture; and the total value of the material produced, instead of being, as in the above statement, £3,585,739, amounted in 1836, according to the returns of the inspectors, to £4,975,424. The following abstract contains all that it appears desirable to offer on this occasion, and presents under five principal divisions the total number of workmen engaged in the manufacture, with the value created by them in each of those divisions:—

	Number of Workmen.	Value Created.
1. Extraction and Preparation of the Ore . . .	17,557	£ 500,632
2. Production of Pig-Iron (<i>fonte</i>) . . .	6,776	1,969,132
3. Production of Malleable Iron (<i>gros fer</i>) . . .	8,678	1,506,247
4. Founding, Drawing, Rolling, &c.	8,615	812,486
5. Converting, Moulding, Casting, &c. Steel . . .	2,149	186,927

Total 43,775 £4,975,424

Rather more than 40 per cent. of the value here stated is made up of the cost of the fuel used in the various processes, viz.—

Wood Charcoal	£1,643,826
Wood	13,040
Coke	96,972
Coal	285,235
Peat	694

£2,039,767

This sum is divided among the different processes in the following proportions :—

	£.	Decimal Proportion.
1. Roasting the Ore	1,782	0·087
2. Smelting	1,132,039	55·500
3. Refining, Puddling Furnaces, &c.	737,888	36·175
4. Casting, Drawing, Rolling, &c.	121,556	5·959
5. Moulding, Casting, &c. Steel	46,502	2·279

Total 2,039,767 100·000

It will be seen that four-fifths in value of the fuel is composed of wood. Coke was not used in the iron-works of France until 1821, and at the present time is employed almost exclusively for processes subsequent to smelting the ore. The proportionate value of different kinds of fuel consumed in the various processes, in each year from 1833 to 1836, has been,—

	1833	1834	1835	1836
Wood Charcoal	0·838	0·818	0·864	0·806
Coal	0·098	0·129	0·098	0·140
Coke	0·062	0·050	0·037	0·048
Wood	0·002	0·003	0·001	0·006
	1·000	1·000	1·000	1·000

The average prices of the different kinds of fuel in 1836, as stated in the Report, were—

Wood Charcoal	54s. 10d. per ton.
Coal	18 5 „
Coke	20 3 „
Wood	2 10 per stere.

The increased proportion of wood, observable in the working of 1836, is caused by the substitution in part, in some works, of wood dried by heat or partially carbonized.

By the introduction of a proportion of dry wood in place of charcoal, a diminution in the cost of fuel has been attained; but against this advantage must be placed the smaller produce obtained from the furnace

in a given time, as well as a diminution of metal from a given quantity of ore.

Where wood charcoal alone is used for smelting, it requires eighteen metrical quintals for the production of thirteen metrical quintals of iron. Where coke and coal are used in the proportion of ten of the former to nine of the latter, it requires about three quintals of fuel to produce one quintal of iron. In some cases, coke is used with charcoal in the proportion of one quintal of coke to two quintals of charcoal, and the produce has been eight quintals of iron for ten quintals of fuel. In the first case, (where wood charcoal is used,) the cost of the fuel has been 9.92 fr. per metrical quintal of iron, or 4*l.* 0*s.* 6*d.* per English ton. The cost when coke and coal are used, is stated to be 4.45 fr. per quintal, or 36*s.* 1½*d.* per ton; and in the third case, where coke and charcoal are mixed, the cost is said to be 7.60 fr. per quintal, or 3*l.* 1*s.* 8*d.* per ton. The value assigned to the produce is,—

In the first case,	20.99 fr. per quintal,	equal to	£3 10 4	per ton.
In the second case,	11.13 fr.	„ „	4 10 4	„
In the third case,	20.32 fr.	„ „	8 4 11	„

The mixture of coke and charcoal would, upon the whole, appear to be the most profitable in its result: Deducting from the value of the metal the sum expended for fuel, there would remain, when charcoal alone is used, 4*l.* 9*s.* 10*d.* per ton; when coal and coke are used 2*l.* 14*s.* 2½*d.* per ton, and when coke and charcoal are used 5*l.* 3*s.* 3*d.* per ton. These calculations are of course wholly inapplicable to the circumstances in which the manufacture is placed in this country from the actual and relative cheapness of our mineral fuel.

The use of the hot blast has been adopted in several of the furnaces in France. At first it was found that the iron thus obtained was not so well adapted for making bar iron as that for the smelting of which cold air had been used; but some modifications, which are not particularized in the Reports, have been introduced into the process, and this disadvantage has been remedied.

No account is given of the quantity of iron made in France earlier than 1824; but from that year the account is regularly stated in the Reports, from which the following abstract has been computed:—

Years.	Pig-Iron.	Malleable Iron.	Years.	Pig Iron.	Malleable Iron.
	English Tons.	English Tons.		English Tons.	English Tons.
1824	194,636	139,564	1831	221,423	138,942
1825	195,588	141,396	1832	221,660	141,336
1826	202,756	143,336	1833	232,559	149,982
1827	213,175	146,621	1834	265,028	174,507
1828	217,604	149,117	1835	290,378	206,396
1829	213,868	151,319	1836	303,739	201,691
1830	222,965	146,242			

As in the case of coals, the importations of foreign iron into France have kept pace with the increase in the native production. The Custom House accounts of that country are detailed with great minuteness; but it is not necessary here to particularize the quantities of each description of foreign iron used in France. The value so consumed in each year since 1815, and the amount of duty collected on the same, were as follow:—

Years.	Value of Foreign Iron Imported for use.	Amount of Duty collected.	Years.	Value of Foreign Iron Imported for use.	Amount of Duty collected.
	£.	£.		£.	£.
1815	87,556	29,840	1826	218,212	130,326
1816	98,063	45,600	1827	186,846	98,960
1817	202,205	122,024	1828	179,635	95,073
1818	163,173	89,491	1829	160,625	84,396
1819	164,238	94,180	1830	187,117	100,476
1820	162,107	81,517	1831	123,185	63,644
1821	226,571	126,945	1832	159,222	82,192
1822	144,193	74,540	1833	174,601	91,569
1823	141,501	86,258	1834	200,573	104,598
1824	164,812	94,157	1835	231,208	121,346
1825	150,690	86,894	1836	252,702	122,842

The production in France of metals, other than iron, is of little or no commercial importance at the present time. The whole value created in the articles of lead and silver, antimony, copper, and manganese, amounted in 1836 to less than 60,000*l.*, and gave employment to only 1760 workmen. In noticing this fact the inspectors encourage the hope that some considerable addition may shortly be made to the produce of mining industry applied to the articles just enumerated; they do not, however, explain the grounds upon which this hope should be entertained, further than by noticing the existence in the country of several promising fields for that industry hitherto allowed to remain unproductive, and by stating that they are occupied in collecting information which may serve to facilitate the future attempts of persons desirous of embarking their energies and their capital in this direction.

Lead and Silver.—There are 11 lead-mines in operation in France, situated as under—

Hautes Alpes	2, produced, in 1836,	46 Tons, valued at £ 1,175
Finistère	1	504 " " 11,692
Gard	1	4 " " 80
Isère	1	54 " " 848
Loire	1	22 " " 260
Lozère	1	47 " " 1,316
Puy-de-Dôme	1	30 " " 740
Rhône	3	6 " " 98
	11	713 £16,209

The silver obtained from the soil of France is separated from the produce of some of the lead-mines above mentioned: the quantity and value thus yielded in 1836 were,—

Hautes Alpes	203 lbs., valued at £ 660
Finistère	3,517 " " 11,542
Lozère	1,028 " " 3,388
Puy-de-Dôme	324 " " 1,060
	5,072 £16,650*

The quantity of lead of native production supplies but a small part of the wants of the country. The importations into France from foreign countries, principally Spain, for consumption during the five years from 1832 to 1836, have averaged 14,800 tons per annum.

* The value put upon this produce in the Report is thus 5*s.* 6*d.* per oz.

Antimony.—This mineral is produced in France from 11 mines, viz.—

Allier . . .	1, which produced, in 1836, 138 Tons, valued at £3,864		
Ardèche . . .	1	63	1,944
Gard . . .	1	23	628
Haute-Loire .	2	22	652
Lozère . . .	4	35	960
Puy-de-Dôme .	2	130	4,073
	11	411	£12,121

Copper.—The produce of copper-mines in France, five in number, is quite inconsiderable; three of these mines are in the department of Hautes Alpes, and two are in the department of the Rhone. The quantity of metallic copper which they yielded in 1836 was only 102 tons, and its value £7877. The yearly consumption of foreign copper, principally the produce of Russia and of England, during the five years from 1832 to 1836, has averaged 6235 tons.

Manganese.—The manganese-mines are situated as follows:—

Allier	1, which produced, in 1836, 365 Tons, valued at £1,628		
Aude	1	148	570
Dordogne . .	3	215	951
Haute-Saône .	1	39	31
Saône-et-Loire	1	900	2,926
	7 Mines	1,667 Tons	£6,106

The engineers to whom the task of inspecting the mining establishments of France is entrusted have not confined their enquiries to the objects which have been noticed in this paper: they have included in their Annual Reports the statistics of various branches of industry in which mineral substances are produced or employed; such as bituminous minerals—alum—sulphate of iron—and salt; the produce of quarries—of glass-houses—of porcelain and pottery manufactories—of copper and zinc works—and of chemical processes. By this means, it is shewn that the number of workmen who in 1836 depended for subsistence upon mining operations and their consequences, amounted to 273,364, while the total value created by their joint labour amounted to 377,684,791 fr., or £15,107,392, viz.—

	Establishments.	Workmen.	Value created.
			Francs.
Coal, Lignite, Anthracite, and Peat .	2,219	55,735	30,533,922
Iron and Steel	..	43,775	124,385,616
Lead, Silver, Copper, Antimony, Man- ganese	..	1,760	1,476,161
Bitumens	6	245	192,128
Alum and Sulphate of Iron	19	1,141	1,760,667
Salt	..	16,615	10,397,164
Quarries	..	70,396	40,350,419
Glass Manufactures	..	10,497	47,474,301
Porcelain, Pottery, and Earthenware .	..	20,485	27,418,122
Bricks and Tiles, and Lime	..	44,604	51,939,239
Plaster	..	4,298	14,713,796
Chemical Products	..	2,216	22,043,732
Copper, Zinc, and Lead Works . . .	..	1,597	4,999,524
		273,364	377,684,791